

JSC Senior Design Project and or Intern Request Form			
Project Title:	Leak determination of COTS Li-Ion Battery Cells		
Project Description:	Experiment for leak rate determination of COTS Li-Ion Battery Cell designs Space battery applications require NASA to identify cell designs and lots with long calendar life. Work could be done at ESTA or at A&M.		
Choose most appropriate area of research:	<input checked="" type="checkbox"/> Planetary Surface Systems <input checked="" type="checkbox"/> Ground Operations <input type="checkbox"/> Propulsion <input checked="" type="checkbox"/> Spacecraft <input type="checkbox"/> Human Health Program		
Program Applicability	<input checked="" type="checkbox"/> ISS <input checked="" type="checkbox"/> CEV/SLS <input checked="" type="checkbox"/> Commercial Crew <input checked="" type="checkbox"/> Asteroid <input checked="" type="checkbox"/> Adv. Technology (AES/STMD)		
Choose one project:	Roles and Responsibilities of Senior Design POC/Mentor		
<input checked="" type="checkbox"/> Senior Design	I have coordinated with my management and I am able to support at least three (3) teleconferences (kick-off, mid-term, and final) with a Senior Design Project Team at a university that chooses my project. I understand that I shall not provide any sensitive or classified information to the Senior Design Project students of faculty. I will provide feedback to the project team if requested.		
<input type="checkbox"/> Internship	I have coordinated with my management and I am able to support an intern. If an intern is selected for my project, I will provide an environment where an intern can grow and we may have a mutually beneficial and successful internship. My project will be able to provide a desk space, work area, and computer for an intern. I will review any final report or presentation that the intern generates during his/her internship and submit it to Export Control (DAA) for approval. This project opportunity will be posted in OSSSI, through the office of Education (use exact same title). OSSSI website: : https://intern.nasa.gov		
Check desired Timeframe for Internship:	<input checked="" type="checkbox"/> Year long <input type="checkbox"/> Summer <input type="checkbox"/> Fall <input type="checkbox"/> Spring		
Check desired Major/Minor(s) for Internship:	<input type="checkbox"/> Aerospace Engineering <input type="checkbox"/> Aeronautical Engineering <input type="checkbox"/> Astronautical Engineering <input type="checkbox"/> Biomedical Engineering <input checked="" type="checkbox"/> Chemical Engineering <input type="checkbox"/> Civil Environmental <input type="checkbox"/> Health Engineering <input checked="" type="checkbox"/> Electrical, Electronic Engineering <input type="checkbox"/> Computer Engineering <input type="checkbox"/> Engineering Physics <input checked="" type="checkbox"/> Industrial Manufacturing Engineering <input type="checkbox"/> Materials, Metallurgical Engineering <input checked="" type="checkbox"/> Mechanical Engineering, Mechanics <input type="checkbox"/> Nuclear Engineering <input type="checkbox"/> Astronomy, Astrophysics <input type="checkbox"/> Chemistry <input type="checkbox"/> Optics <input type="checkbox"/> Physics <input type="checkbox"/> Atmospheric Sciences <input type="checkbox"/> Geography <input type="checkbox"/> Geosciences <input type="checkbox"/> Oceanography <input type="checkbox"/> Natural Resource Management <input type="checkbox"/> Mathematics, Applied Mathematics <input type="checkbox"/> Computer Science <input type="checkbox"/> Astrobiology <input type="checkbox"/> Biology <input type="checkbox"/> Biochemistry/Biophysics <input type="checkbox"/> Microbiology Bacteriology <input type="checkbox"/> Chemical Engineering <input type="checkbox"/> Other, please specify:		
Mentor Name:	Eric Darcy	Mentor's E-mail:	Eric.c.darcy@nasa.gov
Title & Organization:		Phone #:	281.483.9055
Alternate POC/Mentor Name:		Alternate's E-mail:	
Education Office Signature and Date:		Intern Mentor's Signature & Date:	
As supervisor/manager, I approve of the above named individual as Senior Design Project POC of Intern Mentor.		Supervisor/Manager's Signature & Date	
(For Intern Request Only) As Administrative Officer, I am aware that the above named Intern Mentor has submitted a request for an Intern.		Administrative Officer's Signature & Date:	

EP-3: Leak determination of COTS Li-Ion Battery Cells

JSC POC: Eric Darcy

Leak rate determination for COTS Li-ion cell designs Space battery applications require NASA to identify cell designs and lots with long calendar life. This experiment requires sealing cells in laminate bags while in an argon glove box and thermally cycling them for weeks to stress the cell seals. Then the bags are sampled and analyzed by GC-MS to measure trace concentrations of the electrolyte solvent (carbonates). When this leak rate is coupled with cell disassembly to measure the quantity of free liquid electrolyte in a cell design, one can estimate the time required to lose all free electrolyte, which should be equivalent to its calendar life. NASA could provide the cells, laminate pouch material, and heat sealer. Work could be done at ESTA at the Johnson Space Center.